REMARKS

Claims 1, 2, 8, 9, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laucht et al (6220164). The rejection is respectfully traversed.

The Examiner refers to Laucht Fig 2, and the porous layer 4. The Examiner points to the disclosure of Laucht that makes use of an explosive gas or gas mixture (col. 3, lines 5-45), and concludes that it would have been obvious to substitute a solid oxidizer for the explosive gas "to create a more stable explosive device that can be stored for longer time periods." This conclusion of obviousness is flawed because Laucht and the art provide no suggestion of how to incorporate a solid-state oxidant within porous material.

Laucht relies upon heating for ignition. The resistance of the thermal insulation layer 4 provides for electrically generated heat "for the electrically generated heat to be largely converted to ignition energy so that the ignition path material heats up abruptly and thereby triggers the ignition in the primary ignition charge (not shown) arranged above the semiconductor bridge 6." C3, L20-29. Thus, heating of the semiconductor bridge 6 aided by the combustible gas helps to quickly ignite an ignition charge that is not shown. C3, L39-42. The combustible gas provides additional thermal energy for the ignition process. C3, 40-42. Another alternative disclosed in Laucht to aid the heating is a thin metallic coating 22 as disclosed in Fig. 3 and column 4, lines 1-5. Laucht also makes use of a hollow space 104 instead of the porous material 4. The point of the porous material 4 or the hollow space 104 is thermal insulation so that more of the heat generated in the bridge 6 ignition path 8 is rapidly transferred to ignite an un-shown primary ignition charge. C3, L 23-26.

There is no showing, however, of any ability (or recognition of the possibility) to include a solid-state oxidant within the porous material in Laucht. This conclusion was clearly reached with reference to the present specification and instead of the prior art. The background of the present application establishes that liquid and gaseous oxidants have been used with porous silicon. The present invention advances the state of art by providing a more stable porous silicon-based explosive. The present invention also provides methods as disclosed in the specification for incorporating solid-state oxidants within porous silicon. The art presented in the office action fails to suggest

either a motivation for using a solid-state oxidant or an ability to use a solid-state oxidant. The invention does provide a more stable porous silicon-based explosive, but there is no suggestion in the art of achieving such a stable porous silicon-based explosive.

The rejection is also traversed because Laucht fails to disclose a thin film of porous silicon. The only thin film in Laucht is the heavily n doped silicon bridge. The porous material is part of the carrier 2 and is not a thin film. Instead, it is in the "shape of a trough". C3, L9-10. Nor is there any basis to make the area 4 (when it is not completely removed as in Fig. 3) a thin film because the point of the area is to provide insulation so that heat transfer primarily occurs to the unshown primary ignition charge instead of into the carrier 2. Changing the "trough" to a thin film would not serve this purpose.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laucht et al (6220164) as applied to claims 1, 2, 8, 9, and 29 above, and further in view of Nielson et al (6170399).

The Examiner argues that Nielson teaches the use of various oxidizers such as PETN and nitrates in an igniter application. There is no suggestion of any method to incorporate the specific oxidants into the area 4 of Laucht. For this reason, the conclusion of obviousness is not supported by evidence. The present application discloses specific techniques for the formation of the porous thin films having the solid-state oxidant within the pores.

Claims 14,15, and 17-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laucht et al (6220164) in view of Nonintrusive Diagnostic Techniques for Research on Nonsteady Burning of Solid Propellants to Parr.

The Examiner argues that Laucht discloses the structure as claimed, see Fig 2. The Examiner argues that "Parr teaches the known method of igniting an explosive device and measuring the emission spectrum (pg. 268). Any of the compounds in the explosive composition can be considered the analyte. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the method as taught by Parr with the device as taught by Laucht since Parr teaches that it is known to use explosive devices to determine the emissive spectrum of explosives."

The proposed modification of Laucht does not make any sense because Laucht is not at all concerned with detection of any analytes. Laucht is exclusively concerned with providing an ignition source in a vehicle airbag system. C1, L7-14. While it is known that explosives give off emission spectrums, there is no suggestion of the method of claim 14 when that knowledge is considered with Laucht. Laucht does not concern analyte detection and any attempt to conduct detection would be hindered by the fact that there is no way to introduce an analyte into the system of Laucht and because the primary ignition charge would interfere with any effort to detect an analyte. Laucht is not in the field of analyte detection and provides no methods at all for analyte detection.

New claims 30 and 31 have been added. These claims depend from claim 29 and specify a nanowires and a powder, respectively. There is no suggestion of these particular preferred embodiments in the art of record.

For all of the above reasons, applicant requests reconsideration and allowance of the present application. Should the Examiner believe that outstanding issues exist that could be resolved in a telephone conference, the Examiner is invited to contact the undersigned attorney at the below listed number.

Respectfully submitted,

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